

EPA Comments and Responses on Draft (dated June 2021) and Final (dated December 2021) Pre-Design Investigation Work Plan Swan Island Basin

Comments dated February 1, 2022

This is U.S. Environmental Protection Agency's (EPA's) conditional approval of the Pre-Design Investigation Work Plan (PDI WP) for the Swan Island Basin. The PDI WP was prepared by HydroGeoLogic, Inc. (HGL) on behalf of Swan Island Basin Remedial Design Group (SIB) and dated December 2021. Approval is conditioned on SIB adequately addressing EPA's responses as described below. Work may proceed on those elements for which EPA has no comments.

The conditional approval excludes PDI WP Appendix C Health and Safety Plan. EPA does not approve Health and Safety Plans but reviews for completeness.

EPA Comments on the PDI WP

Unless otherwise noted, SIB responses to EPA's comments on the Draft PDI WP and the Revised Draft PDI WP are acceptable. However, clarification and supplemental information is provided below for the following comments: General Comments 1, 2, 3, 7, 9, and 10; Specific Comments 6, 9, 10, 11, 18, 20, 22, 23, 28, 34, 41, and 51; Editorial Comments 1 and 6.

EPA General Comment 1 (August 13, 2021)

Sufficiency Assessment Report Data Gaps: The PDI WP does not clearly establish that the data gaps identified in the SIB Project Area Draft Sufficiency Assessment Report Revision 4 (SAR) (HGL 2021) will be filled as part of the PDI. A summary of the data gaps should be provided in the PDI WP along with a plan to fill those data gaps. EPA recommends including a crosswalk table to track data needs.

Additionally, clarify if any of the evaluations planned for the PDI are intended to generate inputs for the SEDCAM modeling discussed in the SAR. Additional comments regarding the proposed SEDCAM model will be provided with EPA's comments on the SAR.

SIB Response (September 10, 2021)

The PDI WP will be amended to clearly establish the data gaps identified in the SAR will be addressed as part of the PDI. A summary of the data gaps identified together with a plan to address these data gaps will be provided in the PDI WP. A crosswalk table will be created to track data needs.

The PDI WP will be amended to clarify which PDI data will be used to generate inputs for the SEDCAM model. The specific information and a brief summary of how it will be used will be included as text in appropriate sections, including Sections 4.1 and 4.9.

EPA Response (February 1, 2022)

Additional information summarizing data gaps identified in the SAR was not provided in the text. Additionally, a crosswalk table of data gaps identified in the SAR was not included nor was that information added to existing tables. Revise the PDI WP to include additional information summarizing

data gaps identified in the SAR and a crosswalk table of data collection and SAR-identified data gaps or add information about SAR-identified data gaps to Table 4-1.

As a specific example, the SAR identified a VOC groundwater plume associated with End of Swan Island Lagoon (ESCI #3901) as “C(u) Sources not sufficiently controlled because RPCs are present in site media >CUL and/or RAL and there is a direct pathway.” As indicated in the SAR, this site is not currently in the DEQ source control program. The plume has the potential to discharge into the project area at concentrations above CULs. The lack of porewater data should be identified as a data gap and sampling incorporated into the future porewater sampling program in order to determine (as indicated in the ASAO SOW) whether cleanup can go forward and, if or how this source should be integrated into the in-water design.

Further, neither Section 4.1 nor Section 4.9 include any discussion of how the PDI data will be used in the SEDCAM modeling. Although the PDI sediment core data may not directly be used for the SEDCAM modeling, the hydrodynamic and sediment transport modeling presumably will be used to develop inputs for SEDCAM. Therefore, at a minimum, revise Section 4.9 to discuss how these models will be used to support the SEDCAM model.

EPA General Comment 2 (August 13, 2021)

SMA Delineation:

- b. The intent of the recommendations in the RDGC is to provide a nominal 150-foot grid resulting in a maximum distance of 150 feet between sample locations to delineate an SMA boundary. Note, it is expected that additional samples at higher density may be needed to sufficiently plan for the RD. Adjust the text and proposed sample locations to illustrate that no samples are further than 150 feet apart or provide rationale for why certain proposed sample locations should be spaced farther apart. Note that SMA boundaries will be considered undelineated until they are bounded by samples with no RAL and/or PTW threshold exceedances within a 150-foot grid.

SIB Response (September 10, 2021)

- b. The text in the PDI Work Plan and applicable supporting documents will be amended to note that sample locations shall not be further than 150' apart. This sample spacing guidance applies specifically to the SMA boundaries with more flexibility for sample spacing within the interior of the SMA. Where proposed sample locations are >150' apart, written rationale will be provided to justify these proposed sample locations.

EPA Response (February 1, 2022)

- b. EPA notes the following potential data gaps:
 - Figure 3-2a indicates a historical RAL exceedance for surface sediment sample S220 (PCBs and PeCDD) in cell C25 along the SMA boundary however no new surface sample is proposed in cell B25 to delineate the extent of the SMA boundary. A subsurface sample is proposed in cell B25 and a surface sample should be added to this location or a rationale provided for not further characterizing contamination at depth.

- Cell B8 has 2 surface samples; 1 has a PCB exceedance. A subsurface sample should be added to cell B8 to delineate contamination vertically or a rationale provided for not further characterizing contamination at depth.
- Cell B10 contains Post ROD sample A1 which has no exceedances. However, the post ROD sample directly adjacent A2 (cell C10) has above RAL surface concentrations not delineated by depth. A subsurface sample should be added in either C10 or B10 between A1 and A2 to delineate the contamination horizontally and vertically.
- A subsurface sample is planned for B19. Include a surface sample to delineate the SMA horizontally.
- PDI Sample B303, located on the boundary of the SMA in grid cell C-28, exceeded PCB and dioxin/furan RALs. Sample G411 was collected from grid cell B-28 (the adjacent grid cell to the north) in 2004, and this sample was not analyzed for dioxins/furans. The Revised PDI WP does not identify this data gap, which has the potential to leave the SMA undelineated adjacent to a riverbank.
- Add step out subsurface sediment samples adjacent to cells BH and BI (1H and 1I) and archive in the event that samples from cells BH and BI have RAL or PTW threshold exceedances.

Note that areas under docks and other structures may require additional characterization as part of RD and physical and chemical characterization in those areas should be noted as a data gap in the PDI WP.

EPA General Comment 3 (August 13, 2021)

Sediment Sampling: Upon reviewing planned core depths relative to existing subsurface data and RAL/PTW exceedances, EPA believes that the target depth of the proposed subsurface sediment samples should be extended to 15-feet (ft) below mudline (bml) or refusal in most locations. Additionally, 20 feet bml may be required in some locations, particularly those adjacent to historical sample locations with concentrations exceeding RALs at depths greater than 15 feet. EPA recommends collecting additional archive samples from deeper intervals than the depths proposed in this PDI WP to be analyzed pending characterization of the shallower intervals to avoid unnecessary design schedule delay. This will reduce the potential for data gaps related to unbound depth of contamination (DOC) and lateral extent of contamination. If only subsurface contamination exceeds RALs and/or PTW thresholds and the expected remedial technology application is capping, full delineation of DOC may not be necessary (see RD Principle #4 in Section 1.4 of the RDGC [EPA 2021]). However, characterization of subsurface sediment contamination will be required to sufficiently characterize material to be left in place to support cap design evaluations (see RDGC Table 5-2) or to demonstrate the stability of the buried contamination. If DOC is not fully delineated, EPA will require additional sampling to delineate DOC in dredging areas and areas with non-aqueous phase liquid (NAPL).

SIB Response (September 10, 2021)

The expected remedial technology within the SMA is predominantly dredge and capping or just capping. In light of this likely technology application, EPA further affirmed (8/19/21) that DOC need not be defined in every core, but data should be collected to define DOC for SIB and to support dredge design

where dredging is the anticipated remedial technology. The revised PDI WP will clearly show what is known about DOC for PTW and RAL exceedance. Cores will be judgmentally located to fill data gaps in DOC and extended to 15 or 20 ft bml in areas where necessary and appropriate with selected archiving of samples for analysis. Some 150'-spaced core locations that are not needed for SMA refinement may be omitted to support these deeper core sampling locations with justification for the larger spacing.

EPA Response (February 1, 2022)

EPA appreciates that the text indicates SIB Group will consult with EPA regarding archive sample analysis. Revise the PDI WP to include the proposed analytical schedule for archived samples for EPA review relative to the overall schedule for design. Sediment characterization data gaps will be reevaluated once the PDI data is collected and added to the CSM.

Additionally, the Revised PDI WP contains inconsistent information regarding the approach to delineating the depth of contamination (DOC) within the SMA. The FSP (Appendix A) identifies 8 locations that will be advanced to 20 feet below the sediment surface, but these eight deep locations are not discussed in Section 4.1 or Table 4-1. Revise the PDI WP to correct discrepancies regarding the plan for delineating DOC in the project area.

Figures 3-3a and 3-3b map subsurface sample locations where DOC was not delineated. These locations are generally located at the head of SIB to the east of Outfall S1, or adjacent to the drydocks at the mouth of SIB. The Revised PDI WP only proposes DOC cores at the head of SIB (generally to the east of Outfall S1). EPA recommends that DOC cores also be advanced adjacent to the drydocks at the mouth of SIB or a rationale be provided for why additional cores are not necessary. Revise the rationale to support selecting sample locations to inform DOC.

EPA General Comment 5 (August 13, 2021)

Data Sources: Data used in remedial design (RD) deliverables should come from the Portland Harbor Environmental Data Portal. Verify that the sediment data included in the PDIWP was from the datasets provided at the following links or currently in review by EPA (See below). The text data not included in the approved or in review data sets should either be removed or be clearly distinguishable on all figures and tables.

SIB Response (September 10, 2021)

Interpolations and statistics will be revised to be based only on EPA- approved data or data currently in review by EPA. Report interpolations, figures, and tables will be revised to remove data that are not approved by EPA. Report text will be updated to list the EPA-approved data sources as the basis of RD deliverables.

EPA Response (February 1, 2022)

Section 3.1 indicates that the RD will not rely on the data set from the 2015 Kleinfelder investigation, which has not been approved by EPA, but may consider it a qualitative reference within the SIB project area. Revise the text to clearly identify when and how unapproved data are used qualitatively.

EPA General Comment 7 (August 13, 2021)

Seepage and Porewater Data: Empirical methods to measure groundwater seepage should be considered in the current PDI WP or the text should be revised to clarify when such empirical measurements are

expected to be completed for cap design (e.g., a subsequent stage of the PDI or the supplemental PDI). Comparative measurements of temperature and specific conductance in sediment porewater and overlying surface water can identify general locations of upwelling but do not provide a quantitative measure of the upwelling rates which can be of the most benefit to this sensitive modeling parameter.

Similarly, porewater concentrations for ROD Table 17 contaminants will also be required for cap design so the text should clarify when porewater chemistry data is expected to be collected.

SIB Response (September 10, 2021)

The text will be modified to clarify that the porewater evaluation will be completed in two phases. The first phase, as currently proposed, focuses on mapping the locations where upward migration of porewater is currently occurring in SIB sediments. The text will be amended to describe the second phase of porewater characterization for cap evaluation. The second phase will include empirical methods to measure groundwater seepage and porewater sampling to characterize porewater chemistry. The results of the first phase are needed to determine the locations and quantities of samples and groundwater seepage measurements. The text will be modified to state that HGL will prepare and submit a Phase 2 sampling and field measurement plan to EPA for review and approval prior to advancing the second phase of the study.

EPA Response (February 1, 2022)

The text mentions future groundwater seepage and porewater chemistry sampling but does not clearly state that sampling will be included in Phase 2 as is indicated in several SIB Group responses. Revise the text to include an explicit discussion of the sampling planned for Phase 2.

Additionally, porewater chemistry should be noted as a data gap in Table 4-1 and FSP Table 2-1, and the anticipated time at which that data gap will be filled should be noted (e.g., Phase 2 PDI).

EPA General Comment 8 (August 13, 2021)

Cap Design Data Needs: Data and engineering study needs to support cap design are incomplete. Engineering described in the PDI WP to inform cap design are limited to cap physical stability. Clarify how the sampling proposed in the PDI WP is expected to inform chemical isolation layer design requirements for the cap. The PDI WP should more clearly identify data gaps relevant to inform cap design, a cap treatability study (noted in Worksheets #14 and #16 of the QAPP), and any other engineering evaluations needed to support RD. These data gaps should include sampling for site-specific porewater concentrations and groundwater seepage rates in areas where porewater upwelling is measured and/or caps may be required.

SIB Response (September 10, 2021)

Text revisions to the porewater study will also address this comment (see response to previous comment). Specifically, the second phase of the porewater study will include collecting and analyzing porewater samples and making field measurements of groundwater seepage. The design analyses to support cap design and evaluate cap stability are not part of the PDI, but instead will be conducted either as part of the Basis of Design report or first design submittal. The discussion of the porewater study will be amended to explicitly identify the data needs for the anticipated cap design and evaluation and show how the proposed data collection addresses those data needs. Regarding the cap treatability study, that study has

not yet been designed, and it is not proposed as part of the PDI. The cap treatability study will be designed and implemented on a parallel track with the PDI, and it will go through separate EPA review and approval.

EPA Response (February 1, 2022)

Revise the text related to the cap treatability study to describe the plan indicated in SIB Group's response. Worksheets #14 and #16 of the QAPP have not been revised and still show that the treatability study was supposed to be submitted to EPA on October 27, 2021.

EPA General Comment 9 (August 13, 2021)

Enhanced Natural Recovery: The ROD technology application decision tree identifies ENR as the selected technology for areas within the project area that are outside of the sediment management area (SMA). The PDI WP should acknowledge this requirement more clearly and describe what data collection and evaluations will be used to identify areas where MNR may be an effective remedial technology versus areas where ENR would be necessary to achieve CULs. Data gaps relevant to this evaluation should be identified to ensure that the necessary information will be collected as part of the PDI.

SIB Response (September 10, 2021)

The applicable sections of all documents will be amended to specifically clarify which areas will be potentially subject to MNR and ENR. The revised text will include specific data collection locations and parameters. The text will also include evaluations based upon this data to reflect the selection of the appropriate technology based upon demonstrated compliance with applicable CULs.

Specifically, HGL anticipates that there will be few if any areas where MNR would be an effective substitute for ENR. Data collection and analysis efforts relevant to the consideration of MNR include the shoreline reconnaissance for riverbank evaluation, the habitat survey, and the hydrodynamic and sediment dynamic analysis within the project area.

EPA Response (February 1, 2022)

Data gaps related to the ENR evaluation have not been clearly identified in the PDI WP. Furthermore, the text added to Section 1.3.5 should be expanded to clarify what criteria will be considered when evaluating areas for ENR. Revise the text and data gap tables to include this information.

EPA General Comment 10 (August 13, 2021)

Data Quality Objectives: EPA recommends revising the document to follow EPA's 7 step DQO process for each media (EPA, 240/B- 06/001, 2006).

SIB Response (September 10, 2021)

The appropriate documents will be amended to reflect compliance with EPA's 7-step DQO process for each sampled media. While this comment was listed as item#10 in the General Comments of the PDI WP, specific amendments that addresses this comment will be found in the QAPP, the FSP and all other documents where data collection and analyses will be performed.

EPA Response (February 1, 2022)

EPA has the following comments on the DQO-related revisions and the text should be revised accordingly:

- a. Revise QAPP Section 11.3.2, page 26 to remove dive crew size. HASP elements of dive crew size will be separately reviewed for any safety deficiencies by EPA.
- b. Revise each section of 11.3 to include specific standards for each media, e.g. for bathymetry, citing the Hydrographic Surveying Engineering Manual (EM) 1110-2-1003, USACE 2013.
- c. Revise the DQO to explicitly note where in the WP text details on the number of samples and locations to meet each portion of the objective are found.
- d. The DQO should more specifically discuss how each piece of collected data will be used as well as error tolerances.

EPA Specific Comment 3 (August 13, 2021)

Section 1.6 Important Definitions, page 1-9:

- b. Recontamination Potential Chemicals (RPCs) – The stated approach for identifying RPCs is screening existing surface sediment data against CULs. While the surface sediment screening process/approach may be utilized, it does not remove the need to screen data from all media (e.g., surface sediment, subsurface sediment, groundwater, stormwater, and riverbanks) against ROD criteria to identify sources that may pose a recontamination threat. EPA requests that the identification of RPCs be based on an assessment of all available sediment, riverbank, groundwater, and stormwater data screened against the applicable ROD Table 17 CULs as modified by the 2019 ESD and the 2020 Errata #2 memorandum, and ROD Table 21 RALs and PTW thresholds. The PDI approach should be revised as needed based on review of data from all media.

SIB Response (September 10, 2021)

- b. The stated approach to identifying RPCs will be revised to include the results of the data review from all media from the SAR. The screening of available data for stormwater, groundwater, and riverbank data against applicable ROD Table 17 CULs, as modified by the 2019 ESD and 2020 Errata #2 was performed in Section 6 and Appendix E of the SAR. The following COCs exceeded ROD CULs in riverbank soil: Arsenic, cadmium, copper, lead, mercury, zinc, PCBs, PAHs, and dieldrin. The following COCs exceeded ROD CULs in groundwater: Arsenic, copper, and PAHs. The following COCs exceeded ROD CULs in stormwater: Arsenic, copper, zinc, BEHP, PCBs, cPAHs, and dioxins and furans. All of these COCs were retained as RPCs in surface sediment, except cadmium, copper, lead, zinc, DDx, and total chlordane.

EPA Response (February 1, 2022)

The text was not revised as indicated in SIB Group's response. Update the text to state that RPCs will be based on an assessment of all available sediment, riverbank, groundwater, and stormwater data screened against the applicable ROD Table 17 CULs as modified by the 2019 ESD and the 2020 Errata #2 memorandum, and ROD Table 21 RALs and PTW thresholds.

EPA Specific Comment 6 (August 13, 2021)

Section 2.2.1 Quiescent Backwater Conditions are Prevalent Withing SIB, page 2-4:

- a. Revise the text to provide a reference for the statement that flow velocities do not exceed 0.1 feet per second and describe the conditions under which the flow velocities exceed 0.1 feet per second and the associated velocities.

SIB Response (September 10, 2021)

- a. Section 2.2.1 will be updated to read “During peak flow conditions in the river, as well as during periods of low flow which result in maximum tidal exchange, ambient current velocities within the SIB interior are uniformly less than 0.1 feet per second except in the vicinity of outfalls when they are discharging (Coast & Harbor Engineering 2013). Current velocities are larger in the mouth of the SIB between the navigation channel and the shipyard, reaching up to roughly 1 foot per second, and can exceed 1 foot per second in the main channel (Coast & Harbor Engineering 2013).”

EPA Response (February 1, 2022)

- a. A reference for the statement that flow velocities do not exceed 0.1 feet per second was provided in the SIB response, but the cited reference was not provided with the revised PDI WP. Provide the cited reference with the revised PDI WP for EPA review.

EPA Specific Comment 9 (August 13, 2021)

Section 2.2.5 Dredging History Informs Interpretation and Application of Sediment

Characterization Data, pages 2-4 through 2-5: Clarify whether there was a lack of records for any period in the provided dredging history. Note whether any years where dredging was not noted are due to a lack of data or whether records confirmed no dredging occurred.

SIB Response (September 10, 2021)

This text of this section will be updated to include a discussion of known periods where dredging did not occur versus periods with historical data gaps. The text will be revised to state: "Records for the Shipyard prior from 1981 to present are well researched and documented in LWG work. However, specific dredging information is not currently available prior to the 1970s for the SIB and may not be complete for non-Shipyard facilities."

EPA Response (February 1, 2022)

The text of this section was not updated to include a discussion of known periods where dredging did not occur versus periods with historical data gaps. Revise the text as indicated in the SIB Group response.

EPA Specific Comment 10 (August 13, 2021)

Section 3 Data Gaps Analysis, pages 3-1 through 3-8: EPA has the following comments on this section and the text should be revised accordingly:

- a. Discuss how the identified data gaps and proposed data collection relate to RD. For example, clarify what RD need(s) the flood impact modeling will serve. Additionally, discuss how the PDI sampling will fill all data gaps associated with the assigned remedial technologies or discuss future plans to fill any remaining data gaps. For example, clarify whether the PDI data will satisfy data needs to evaluate monitored natural recovery (MNR) in the SIB Project Area.

- b. The data gaps analysis appears to only consider the spatial density of samples and does not discuss whether every sample has results for relevant Table 17 and/or Table 21 contaminants. Include a discussion of any contaminant-specific data gaps in the text.

SIB Response (September 10, 2021)

- a. The text in this section will be amended to provide a clear, direct connection between data collection and the technical information required to support the evaluation with the appropriate level of remedy that follows the RDGC. Examples of amended text will include a thorough discussion of the applicability and necessity of flood impact modeling will have on a particular evaluated and selected remedial strategy. HGL will include a crosswalk table to clarify the connection between data collection and addressing data gaps.
- b. Section 3 will be revised to include discussion of Table 17 and/or Table 21 COCs and contaminant- specific data gaps. Discussions will be added such as, "TBT is not analyzed in samples near y. TBT will be analyzed in proposed sample x to fill this data gap."

EPA Response (February 1, 2022)

EPA has the following comments on this section and the text should be revised accordingly:

- a. A discussion of applicability and necessity of flood impact modeling on a selected remedial strategy was not included. A crosswalk table of data collection and data gaps was not included nor was information about SAR identified data gaps added to existing tables. Revise the PDI WP to include a discussion of applicability and necessity of flood impact modeling on a selected remedial strategy, a crosswalk table of data collection and data gaps, and/or add information about SAR identified data gaps in existing tables. See also comment reference No. 1001.

Additionally, revisions to text in Section 3.1.1 (Surface Sediment Contaminant Concentrations) discuss sediment cores and should be moved to Section 3.1.2 (Subsurface Sediment Contaminant Concentrations).

- b. Note that data gaps related to Table 17 contaminants must be addressed during RD. It is acceptable to defer that sampling until the remedial technologies have been selected.

EPA Specific Comment 11 (August 13, 2021)

Section 3.1 Surface/Subsurface Sediment Contaminant Concentrations, pages 3-1 through 3-2:

- b. One of the goals listed in this PDI is to delineate the extent of PTW. Locations with PTW exceedances should be highlighted on PDI WP Figure 3 series and Appendix A Figure 4 series and differentiate RAL from PTW exceedances. The sampling plan should clearly illustrate an approach to delineating these locations vertically and horizontally.

SIB Response (September 10, 2021)

- b. The Figure 3 series and Appendix A Figure 4 series will be updated to highlight PTW exceedances. The sampling plan will be amended to include discussion of how PTW areas will be delineated vertically and horizontally, as described in Response to Comments #1023, 1024, and 1025.

EPA Response (February 1, 2022)

- b. Figure 3-3b shows the locations for PTW threshold exceedances, but Appendix A Figure 4 series does not contain similar information. Revise Appendix A Figure 4 series to include the locations for PTW threshold exceedances.

EPA Specific Comment 13 (August 13, 2021)

Section 3.1.2 Subsurface Sediment Contaminant Concentrations, page 3-3: This section states that “Conceptually, core locations are identified in each grid cell lacking existing subsurface data by randomly generating x, y coordinates for core collection within each cell.” SIB RD Group should provide a rationale for why this approach has been selected and how randomly generated locations will achieve the goals of this PDI or RD plans. EPA generally considers targeted, rather than randomized, sample locations the most appropriate for RD-level SMA delineation.

SIB Response (September 10, 2021)

The text of this section will be revised to locate samples with nominal 150- foot spacing using a 150- foot grid with tolerance for existing sample spacing, vessel accuracy, obstructions, and refusal found due to field conditions. Locations will be judgmentally chosen and where adjustments are made, explanations of locations will be provided.

EPA Response (February 1, 2022)

Sections 3.1.1 and 3.1.2 of the Revised PDI WP state that target coordinates will be randomly generated within each grid cell and then manually adjusted to better meet the 150-foot spacing criteria and that final coordinates will be reported after the fieldwork is complete. However, there is no information about who will be responsible for manually adjusting locations, when the locations will be adjusted (i.e., prior to going into the field, or in the field), and what rationale will be used to inform decision making. As a result of randomization and manual adjustment the distance between proposed samples often exceeds the nominal 150 feet guidance. For example, the subsurface samples in B33 & B34 are approximately 220 feet apart and samples along the SMA boundary C33 and B34 are 250 feet. Additionally, other samples including D25 and E25 are approximately 240 feet apart, D15 & D16 (250 feet), B18 & C18 (200 feet) and various other samples within the design footprint. Revise the PDI WP to provide target sample coordinates and clearly demonstrate that these targeted sampling locations achieve the spatial coverage requirements provided in the RDGC.

EPA Specific Comment 14 (August 13, 2021)

Section 3.3 Stormwater Discharge, page 3-4:

- b. Revise the last sentence in the section to clarify that uplands source control is DEQ's jurisdiction with coordination and input from EPA on upland contamination which may impact the river. Information on upland source control strategy and DEQ and EPA roles in source control is provided in the Portland Harbor Joint Source Control Strategy (JSCS) (DEQ and EPA 2005).

SIB Response (September 10, 2021)

- b. The last sentence of this section will be updated to be consistent with EPA's clarification in this comment: "Uplands source control is ODEQ's jurisdiction with coordination and input from EPA on upland contamination which may impact the river."

EPA Response (February 1, 2022)

- b. This section states that ROD Table 17 COCs were detected in stormwater and stormwater solids in public and select private outfall basins at concentrations that exceed surface water and/or sediment CULs and/or RALs. This should be qualified with the understanding that source control measures, including removal of stormwater solids with concentrations above RALs, have been implemented since RAL exceedances were detected, and these data are not representative of current conditions.

Revise the text to clarify that source control measures have been implemented in some or all cases, and the PDI stormwater sampling will serve to provide updated analytical data representative of current conditions.

The last sentence in this section could lead to misinterpretation that the two sites owned by the U.S. Government (U.S. Navy and Marine Reserve Center [Environmental Cleanup Site Information (ECSI) 5109] and adjacent U.S. Coast Guard Marine Safety Unit [ECSI 1338]) are not subject to source control requirements. Revise this sentence to identify EPA as the regulatory authority for source control at the Navy and USCG sites.

EPA Specific Comment 18 (August 13, 2021)

Section 3.11 Habitat Conditions, pages 3-7 through 3-8: EPA appreciates the initiative to collect these data. EPA recommends coordination with NMFS as soon as possible to confirm the appropriate habitat conditions data are collected. Habitat conditions characterization data should include evaluation of the active channel margin (ACM), which NMFS defines as the area between ordinary high water and ordinary low water. Revise the text to clarify that the survey will include areas down to -15 feet CRD rather than “e.g., depth down to 2 meters.” The characterization should also include the riparian area (above ordinary high water) as well as deep water (below ordinary low water) portions of the project area. In addition to the habitat data described in this section of the PDI WP, EPA recommends habitat data be collected to inform the HEA-based approach, which enables quantification of pre- and post-remedial habitat conditions to determine potential mitigation requirements. Habitat data should be collected along transects at a spacing appropriate to fully describe habitat conditions for input into the HEA. Data should include representative photos at a frequency necessary to capture the habitat conditions along each transect. To inform the HEA, habitat data should include the acreages and conditions of each habitat area where remedial activities will occur, including the following: photos on a transect spacing and photo frequency above and below water that will capture all habitat types and variations in quality for items a-e:

- b. ACM conditions: slope, vegetation, substrate, presence of riprap, sheetpile/seawall, pilings, suspended structures over channel margins (e.g., docks), and floating structures (e.g., docks)
- c. Shallow water conditions: depth, substrate, presence of riprap, sheetpile/seawall, pilings, and suspended and floating structures
- d. Deep water conditions: depth, substrate, presence of riprap, sheetpile/seawall, pilings, and suspended and floating structures
- e. Off-channel (if present): tributary water temperature and position relative to main channel substrate)

SIB Response (September 10, 2021)

The purpose of the proposed habitat data collection is to provide a preliminary basis for assessing the need, extent, and nature of compensatory mitigation that may be required for impacts to Waters of the United States regulated under Sections 404 and 401 of the Clean Water Act. HEA is commonly used as a basis for evaluating habitat function loss and replacement under the Natural Resources Damages Assessment (NRDA) process. HGL does not anticipate using HEA as part of this analysis because addressing NRDA is not within the scope of work for the RD. The USACE has jurisdiction over Section 404, and EPA has delegated Section 401 authority to Oregon DEQ. HGL requests that EPA broker any coordination with NMFS to discuss habitat characterization requirements necessary to inform a habitat impact assessment under CWA requirements, and HGL requests that such coordination also include USACE and ODEQ regulatory representatives. NMFS would be involved in the impact and mitigation discussion through Endangered Species Act Section 7 consultation initiated by the USACE under Section 404 of the Clean Water Act. HEA may be selected as an analytical tool to inform the impact assessment, but that decision should be made in coordination with the appropriate agencies with regulatory jurisdiction.

- b. HGL will amend section 3.11 to include photos on a 150 ft transect spacing along the shoreline to inform the characterization of habitat conditions within the target shoreline zone.
- c. HGL will amend section 3.11 to include photos on a 150 ft transect spacing along the shoreline to inform the characterization of habitat conditions within the target shoreline zone.
- d. HGL will amend section 3.11 to include photos on a 150 ft transect spacing along the shoreline to inform the characterization of habitat conditions within the target shoreline zone.
- e. HGL will amend section 3.11 to include photos on a 150 ft transect spacing along the shoreline to inform the characterization of habitat conditions within the target shoreline zone.

EPA Response (February 1, 2022)

Note that under CERCLA, EPA does not obtain a CWA Section 404 permit from the USACE, but instead has authority to direct the evaluation of habitat impacts to meet the substantive requirements of CWA Section 404. Similarly, USACE does not have a role in consultation with NMFS for implementation of the CERCLA remedy relative to ESA. EPA has initiated programmatic consultation with NMFS for the site-wide cleanup and will direct the project area-specific evaluations under ESA and CWA 404. HEA is the tool that will be used to evaluate habitat pre-and post- remediation for the purposes of complying with CWA Section 404 and, in coordination with NMFS, in compliance with ESA. Therefore, performing parties will need to collect appropriate data to inform the HEA, as described in the EPA comment. EPA, as the decision maker, will ensure implementation of all reasonable NMFS requirements. Similarly, EPA has not delegated its authority under CWA Section 401 to DEQ for CERCLA cleanups in which EPA is lead. EPA will seek input from DEQ in its decision making in implementing CWA. Revise the document as appropriate.

- b. The PDI WP text was revised to include mention of transects spaced 150 feet apart along the riverbank. There is no description of data collection within the active channel margin (ACM). Revise the text to provide details regarding the collection of HEA-based data for the ACM.

- c. There is no description of data collection within the shallow water areas. Revise the text to provide details regarding the collection of HEA-based data for the shallow water areas.
- d. There is no description of data collection within the deep-water areas. Revise the text to provide details regarding the collection of HEA-based data for the deep-water areas.
- e. There is no description of data collection within the off-channel areas, if present. Revise the text to provide details regarding the collection of HEA-based data for the off-channel areas, if present.

EPA Specific Comment 20 (August 13, 2021)

Section 4.2 Porewater Upwelling Location Survey, page 4-2: EPA has the following comments on this section and the text should be revised accordingly:

- c. The timing of the investigation should be planned during the time of the year when the river surface elevations are dropping, has less tidal fluctuations, and seasonal groundwater levels are elevated. The text indicates that regional groundwater elevations were used to determine the period of greatest potential upwelling. The optimal period of upwelling should be determined based on historical river stage and groundwater data as localized to the project area as possible. This period should be clearly identified in the PDI WP for EPA review and approval before starting the survey.
- e. Revise the text with the expected temperature differentials needed to detect upwelling between surface water and groundwater.

SIB Response (September 10, 2021)

- c. Section 4.2 will be modified to clearly state that the optimal period of upwelling within the SIB is typically June - August when river levels are decreasing and groundwater elevations remain high. Existing groundwater data and historical river stage data will be identified and cited in the discussion.
- e. The text will be revised to read: "The detection of upwelling zones between surface water and groundwater will be based primarily on measurements of conductivity with conductivity measurement contrasts with a cutoff of 930 uS/cm. The second method will use a combined Z-score of 0.95 for temperature and conductivity contrasts. See Coastal Monitoring Associates. 2020. Data Report [for] Trident Probe Transition Zone Water Screening [for] Tube Forgings of America, Inc. / Front Avenue LLCs, 4950, 5034, and 5200 NW Front Avenue, Portland, OR. July."

EPA Response (February 1, 2022)

- c. EPA has the following comments, and the text should be revised accordingly:
 - i. Text in PDI WP Section 4.2 and FSP Section 5.5 states that the upwelling survey will be conducted in February and March 2022 based on an evaluation of groundwater elevation data from former monitoring wells at the Portland Shipyard and Willamette River gage data (Morrison Street Bridge station). This information needs to be presented as a figure showing changes in river stage and groundwater elevations with time for EPA's review and concurrence of the period of highest upwelling.

- ii. EPA notes that the February/March time period is different from the July/August time period identified in the response to this comment. Resolve the inconsistency between the timeframe suggested in SIB Group's response and PDI WP to ensure that the DQO of measurement during the time period of greatest upwelling is demonstrated to EPA and revise the text as appropriate.
- e. The actual added text deviates from what was indicated in the SIB response. Revise the text to be consistent with SIB Group's response. Additionally, EPA requests that the cited reference be provided with the revised PDI WP.

EPA Specific Comment 22 (August 13, 2021)

Section 4.4 Riverbank Characterization, page 4-4:

- a. This section discusses review of historical data. If historical soil data has been collected on the riverbank, these locations should be added to the PDI figures. Additionally, an assessment of the extent of ROD Table 17 (riverbank soil/sediment) and Table 21 contaminants or gaps in the data sets should be included in a series of figures. This data should be included in either this PDI WP or in final PDI data evaluation.

SIB Response (September 10, 2021)

- a. This section will be revised as follows: "The screening of available riverbank data against ROD CULs is summarized in Section 6.1.3 and presented in Section 2 of Appendix E and Tables E.1 through E.4 of the SAR. "

EPA Response (February 1, 2022)

- a. Some description of available riverbank data was added to Section 4.4. The level of detail provided is acceptable at this time; however, EPA expects a comprehensive presentation and evaluation of historical riverbank data to be included with the Phase 2 riverbank FSP.

The bullets in Section 4.4, page 4-8 do not include the scenario when ROD Table 21 contaminants exceed the PTW thresholds. The fourth bullet states that remedial technologies to address contaminated riverbank soils with RAL exceedances may include bank stabilization, removal of contaminated soils, and/or capping. Bank stabilization, in and of itself, is not a remedial technology identified in the ROD. EPA understands that riverbanks may be stabilized as a result of removal and/or capping. Revise the first sentence in the fourth bullet to read: "If ROD Table 21 focused COC concentrations exceed the RALs or ROD Table 21 contaminant concentrations exceed the PTW thresholds..." Revise the bullet list summary to address the requirements of EPA's conditional approval of the SRASP and to differentiate actions shown in the second and third bullets.

Additionally, revise this section to include the missing footnote 6 and to reference the decision process indicated in RDGC Appendix D Section 4.1.2 in addition to referencing the ROD.

Finally, it is not clear why the SIB Group response references Section 6.1.3. There is no Section 6.1.3.

EPA Specific Comment 28 (August 13, 2021)

Section 4.10 Habitat Conditions Survey, page 4-9: EPA has the following comments on this section and the text should be revised accordingly:

- a. Revise this section consistent with EPA comments on Section 3.11 to provide more detail on the habitat conditions data to be collected.
- b. Provide additional detail for the statement that, “data collection will be conducted in accordance with applicable state and federal guidelines.” Discuss which state and federal guidelines are applicable.

SIB Response (September 10, 2021)

- a. This section will be amended accordingly to provide a clearer and detailed description of habitat conditions to be collected for use in evaluating and selecting the appropriate level of remedy. See response to comment 3.11 and note the need to coordinate with NMFS, USACE, and ODEQ regarding applicability of Clean Water Act Sections 404 and 401 and Endangered Species Act. The purpose of the habitat evaluation is to support the analysis of impacts to Waters of the United States and the determination of whether compensatory mitigation is required under Section 404. The habitat assessment is not related to NRDA.
- b. Section 4.10 of the PDI WP, Habitat Conditions Survey, will be amended to state "data collection for the survey of habitat conditions will follow all applicable federal and state rules and guidelines. The specific rules and guidelines are typically found within the appropriate federal 404 and 401 permits as well as the applicable Nationwide General Permit for this specific activity. Since this work will be conducted pursuant to CERCLA, it is anticipated that a Permit Equivalent will be issued by the EPA Project Manager that incorporates the regulatory conditions that will guide this work."

EPA Response (February 1, 2022)

- a. The SIB Group needs to collect appropriate data to inform the HEA, as described in the above EPA comment (reference #1053). The PDI WP should describe the methodology for performing the habitat conditions survey. See also the comment above regarding EPA’s authority under CWA 401 during CERCLA cleanup. Also revise Section 10 of the FSP to be consistent with these comments by removing reference to any required permit from USACE for a SLOPES STU variance. EPA decides on the substantive compliance for ARARs listed in Table 25 of the ROD.
- b. The revised PDI WP text indicates a misunderstanding of the purpose, objectives, and use of the habitat conditions data. As described in the EPA comments and responses on Section 3.11, these data are needed to inform the HEA-based approach. The new text referring to federal and state rules and guidelines within the 404 and 401 permits and a nationwide general permit is generally true relative to using nationwide permits as a guide for performing party substantive permit compliance; however, these should not be used to the exclusion of project specific substantive permit compliance examples. Revise the text to note that these federal and state permits do not limit EPA’s interpretation of substantive permit requirements and that future deliverables will incorporate Portland Harbor-specific examples as provided in the forthcoming Programmatic Biological Opinion. Reference to a permit equivalent is incorrect and should be deleted. EPA

comments on Section 3.11 provide guidance and suggested methodology for the collection of habitat conditions data and should be incorporated into the PDI WP.

EPA Specific Comment 34 (August 13, 2021)

Section 4.11.7 Recontamination Potential Evaluation, Upland Pathways – Overwater Sources (Particulates) Recontamination Potential, page 4-13: Explain what data will be used to characterize over-water discharged particulates and what methodology will be used to simulate their deposition.

SIB Response (September 10, 2021)

Section 4.11.7 will be updated to read: "Data used to characterize over- water contributions will include any available measured concentrations within discharged particulates or estimates based on desktop study, and particulate physical properties relevant to in-water transport (density, diameter, shape). Transport and deposition will be simulated using hydrodynamic modeling combined with particle tracking (Lagrangian) transport simulations."

EPA Response (February 1, 2022)

Revise the text to include the historical data and/or discuss the desktop studies that will be used to characterize contaminant concentrations. Revise the text to discuss where collection of under pier cores would be a preferable line of evidence. If insufficient data are available, it will likely be considered a data gap which must be filled to complete the remedial design, such as with under pier core samples which would be a direct measure of recent and historical overwater discharge.

EPA Specific Comment 41 (August 13, 2021)

Section 6 Deliverables/Schedule, page 6-1: Include a table that summarizes the proposed schedule for PDI sampling. The table would provide a quick reference to confirm that sampling is planned for the optimum time (e.g., stormwater/outfall sampling and porewater upwelling surveys), as well as confirm that sampling is appropriately staged so as not to interfere with the other sampling efforts (e.g., geotechnical sampling and sediment sampling for chemistry and other parameters). EPA understands that a detailed field schedule is not possible at this time but expects that one will be provided in the final PDI WP prior to mobilization.

SIB Response (September 10, 2021)

Table 6-1, listing the field tasks, will be added to the document. The new table is provided in the Attachments to this RTC document. The following text will be added to Section 6.1: "The proposed schedule for the work is shown in Table 6-1."

EPA Response (February 1, 2022)

Table 6-1 indicates that the bathymetry and topography surveys were completed from 11/1/2021 to 12/1/2021. Revise the dates to reflect the correct period in 2022 when these survey activities are planned.

EPA Specific Comment 49 (August 13, 2021)

Figure 3 Series:

- e. Add the demarcation of the shallow zone, intermediate zone, approximate top of bank, and approximate future maintenance dredge areas on all figures.

SIB Response (September 10, 2021)

- e. The Figure 3 series will be updated to delineate shallow zone, intermediate zone, approximate top of bank, and approximate future maintenance dredge areas.

EPA Response (February 1, 2022)

- e. Figures 3-1a through 3-1d illustrate revised Portland Harbor Site regions, including a smaller future maintenance dredge area compared to what was presented in the ROD. The Revised PDI WP should discuss these changes, including sources of information, how these changes may affect the application of remedial technologies, and whether these revised areas have been accepted by EPA for use in the RD.

EPA Editorial Comment 1 (August 13, 2021)

Section 1.6 Important Definitions: The second sentence in the subsection appears to contain a typographical error: "DDX.1." Revise as needed.

SIB Response (September 10, 2021)

DDX.1 will be revised to read, "DDx" as listed in Tables 21 and 17.

EPA Response (February 1, 2022)

The typographical error remains in the text. Revise as needed.

EPA Editorial Comment 6 (August 13, 2021)

Section 7 References, pages 7-1 through 7-1: Add the following citations to the reference section:

- a. PGG (Pacific Groundwater Group). 2019a. Surface and Subsurface Sediment Field Sampling and Data Report, Swan Island Lagoon, Portland Harbor Superfund Site. Prepared for Daimler Trucks North America LLC.
- b. PGG. 2019b. Surface and Subsurface Sediment Field Sampling and Data Report, Swan Island Lagoon, Portland Harbor Superfund Site. Prepared for de maximis, inc.

SIB Response (September 10, 2021)

- a. This citation will be added to the section references and cited within the text.
- b. This citation will be added to the section references and cited within the text.

EPA Response (February 1, 2022)

- a. The citation was not added to the reference section. Revise as needed.
- b. The citation was not added to the reference section. Revise as needed.

EPA Comments on PDI WP Revision 1, dated December 10, 2021 (February 1, 2022)

General Comments on PDI WP Revision 1:

- 1. **SRASP:** In the event that a discrepancy exists between the Revised PDI WP and the SRASP, note that the SRASP will be used.

2. **Recontamination Evaluation:** EPA would like to reiterate the following comment, which was also included in EPA’s December 17, 2021 comments on the SAR.

All recontamination potential evaluations “should clearly discuss the magnitude of exceedances of screening criteria as the basis for the relative significance of recontamination pathways. EPA recommends further interpreting any CUL exceedances in the context of RDGC, Appendix C Table 3: RAO Monitoring. The table shows how EPA will assess progress toward achieving RAOs using pathway-specific PRGs and spatial scales during long-term monitoring. This information should be used to determine whether ongoing sources that exceed CULs have the potential to impede or delay attainment of RAOs. Note that RAL and PTW threshold exceedances are evaluated on a discrete basis.”

Specific Comments on PDI WP Revision 1:

1. **Section 6.2 Engineering Study Elements of the PDI, page 6-2:** Revise the text to clarify that this is not a fully inclusive list of all engineering evaluations required for RD or revise the list to include all engineering evaluations in the RDGC (EPA 2021).
2. **Figure 3-2 and 3-3 Series:** EPA has the following comments on these figures and the figures should be revised accordingly:
 - a. The grid cell identification letters and numbers are missing from these figures, making them difficult to cross reference with FSP Tables and Figures that identify proposed sample locations. Revise the figures to include the grid cell identification letters and numbers.
 - b. The circles surrounding the sample location symbols make the figure difficult to review. Revise the figures to more clearly identify CUL, RAL, and PTW threshold exceedances by changing the color of the sample location symbol itself.
 - c. It is unclear why the sample location symbols differentiate “Post-ROD” and “PDI” sample locations. Revise the figures or clarify in the text the difference between “Post-ROD” and “PDI” sample locations.
 - d. Include a figure that shows locations with surface or subsurface RAL and/or PTW threshold exceedances.
3. **Table 4-2 Summary of Stormwater System Sampling Activities and Locations:** Table 4-2 should be updated to be consistent with the text in FSP Section 4.5.1 that states, “The whole water sample will be analyzed for ROD Table 17 COCs, except the PCBs, OCPs, and dioxins and furans. If there is a sufficient volume of stormwater solids available in the carboy after the removal of the whole water sample, those solids will be separated by centrifuge in the laboratory and analyzed for ROD Table 17 COCs, except the PCBs, OCPs, and dioxins and furans”.

Editorial Comments on PDI WP Revision 1:

1. Revise the document with bookmarks for all section headers, automated 508 tagging and other EPA document formatting expectations.

2. When preparing future response to comments, indicate new section header numbers if the section header number has been changed for ease of EPA review.
3. The subsections under Section 2.2 are numbered as 2.1.1 to 2.1.6. They should be corrected to 2.2.1 to 2.2.6.
4. **Table 4-1 Summary of Sample Activities, Numbers, and Analyses:** Table 4-1 still shows that data collection for subsurface sediment sampling includes 174 cores and total 870 samples, which are from the previous draft PDI WP. They should be updated to 181 cores and 905 samples to be consistent with Section 4.1. Similarly, the stormwater sample numbers in Table 4-1 should be updated from 11 to 12 to be consistent with Section 4.3.

EPA Comments on the PDI WP Appendix A Field Sampling Plan

Unless otherwise noted, SIB responses to EPA's comments on Appendix A FSP of the Draft PDI WP and the Final PDI WP are acceptable. However, clarification and supplemental information is provided below for the following comments: Specific Comments 2, 6, 8, 9, 14, 20, 21, 24, and 32.

EPA Specific Comment 2 (August 13, 2021)

Section 4.2 Sediment Sampling, page 4-2: All ROD Table 21 contaminants should be analyzed, per Section 5.1.2 of EPA's RDGC (EPA 2021) unless a CSM based technical rationale can be provided to limit analysis. EPA acknowledges that the data density and results for chlorobenzene and naphthalene are likely sufficient to support such rationale. Revise the text to provide an explicit explanation that references the data.

SIB Response (September 10, 2021)

This section will be amended to include an explicit technical rationale for any ROD Table 21 COCs not analyzed.

EPA Response (February 1, 2022)

Similar to the rationale provided for chlorobenzene, revise the text to include a robust technical rationale for omitting naphthalene from the analyte list.

EPA Specific Comment 5 (August 13, 2021)

Section 4.2.2.1.1 Power-Grab Sampling, page 4-3:

- b. The text indicates that if field conditions preclude the field staff from collecting proposed target samples, then the location will be adjusted or abandoned. Revise the text to clarify that adjustment of sample locations outside of the 25-foot radius or abandonment of a sampling location must be documented in a field change request and approved by EPA.

SIB Response (September 10, 2021)

- b. Revisions will clarify adjustment outside the 25-foot tolerance or abandonment decisions. The following text will be included in Section 4.2.3.1.1: "If an adjusted sample location falls outside of a 25-foot radius of the planned sample location, or if a sample location is abandoned, the location will be documented in a field change request for EPA approval." Also note that FSP text in Section 8.1.1 Field Decisions and Documentation will be amended to clearly describe the process for making and documenting field changes with EPA approval. That process will require (1) verbal communication with EPA to initially discuss the situation and possible solutions, and (2) written documentation of the change.

EPA Response (February 1, 2022)

- b. Revise this section to reference FSP Section 8.1.1.

EPA Specific Comment 6 (August 13, 2021)

Section 4.2.3.1.1 Core Acceptance Criteria and Contingency Plans, pages 4-6 through 4-7:

- d. Clarify what is meant by "within +/- 2 ft of target" with regards to penetration depth. The text seems to imply that cores with 8 to 12 feet of penetration bml will be accepted, but it is not clear

how the first core acceptance criteria (overlying water is present and the surface is intact) would be met if there is an extra 2 feet of sediment in the 10-foot core tube.

SIB Response (September 10, 2021)

- d. Revisions will clarify that the core tube length is 15 ft per Section 4.2.3.3 that describes Vibracore Sampling using a "15-ft long, 4-inch outer diameter" core tube.

EPA Response (February 1, 2022)

- d. The text was not revised as indicated by SIB Group's response. Revise the text to clarify that a 15-foot core tube will be used.

EPA Specific Comment 8 (August 13, 2021)

Section 4.2.5 Dredge Elutriate Testing, pages 4- 10 through 4-11: EPA has the following comments on this section and the text should be revised accordingly:

- b. Revise the text to clarify how and when the sediment samples for disposal characterization and DRET testing will be collected and analyzed, including details on sample depths, proposed locations, compositing, analysis methods, etc. Locations with highest historical COC concentrations should be targeted for the disposal characterization bulk samples.
- f. In addition to the TCLP chemical analysis, Resource Conservation and Recovery Act (RCRA) waste characteristics of ignitability and corrosivity, and any listed waste, should also be analyzed for the disposal characterization bulk sediment samples. As stated in Remedial Investigation Section 3.2.3.1.1, ship building and repair activities in the area could have led to volatile organic compound (VOC) contamination; generator knowledge should be considered to determine whether F002 waste characterization should be conducted.
- g. Clarify when and how dewatering and stabilizing amendments will be tested if the applicable disposal suitability and water quality criteria are not met.
- h. Provide a description of bench tests for dredged material stabilization and handling of wastes to support remedial design.

SIB Response (September 10, 2021)

- b. Additional detail on collection of sediment samples proposed for disposal characterization and DRET testing will be provided. "Investigation Derived Waste (IDW) will be properly characterized and disposed of by NRC-US ecology who has been performing this task for other RD areas under agreement with Gravity Marine." All data regarding highest concentration areas will be provided to NRC-US ecology for waste segregation and proper disposal, as needed. 2018 sampling efforts followed similar protocols in the highest concentration areas of SIB and all IDW did not test as hazardous waste.
- f. These analyses will be added to the analyses proposed for waste characterization and disposal. Text will be revised to state, "Investigation Derived Waste (IDW) will be properly characterized and disposed of by NRC-US ecology who has been performing this task for other RD areas under agreement with Gravity Marine."

- g. If disposal suitability and water quality criteria are not met, then bench-scale testing of amendments will be performed to assess effectiveness at meeting applicable disposal and discharge criteria and support remedial design. Additional detail on bench-scale testing methods and potential amendments will be provided in the revised text.
- h. Bench-scale testing will include water clarification testing as part of the DRET, paint filter testing to support disposal characterization, slump testing to assess sediment behavior during handling, and testing of different admixtures of sediment and amendments. Additional detail on bench-scale testing methods will be provided in the revised text.

EPA Response (February 1, 2022)

- b. EPA appreciates the additional information regarding IDW disposal. EPA clarifies that the original comment was focused on elutriate testing and dredge material characterization for disposal during remedial action. Revise this section to define the locations for DRET, provide additional detail on the approach for collecting and analyzing samples for elutriate testing and dredge material characterization, and clarify what water quality criteria will be used to evaluate the results.

Revise Section 4.1 of the PDI WP to be consistent with this section of the FSP.

- f. EPA appreciates the response and the addition of the analyses. Note, consistent with EPA response to #1160, EPA clarifies that the original comment was focused on dredge material characterization for disposal during remedial action, and not on disposal of IDW. Revise the text to include RCRA waste characteristics of ignitability and corrosivity, and add that any listed waste, should also be analyzed for the disposal characterization bulk sediment samples.
- g. Revise the text to include additional detail on bench-scale testing methods and potential amendments.
- h. Revise the text to include additional detail on bench-scale testing methods and potential amendments.

EPA Specific Comment 9 (August 13, 2021)

Section 4.3.2 Riverbank Soil Characterization, pages 4-12 through 4-13:

- b. EPA expects characterization of riverbank soils for all contaminants listed in RDGC Appendix D Table 1 unless a technical rationale based on the project area CSM can be provided to support the exclusion of certain contaminants listed on Table 1 of the guidance. Revise all applicable sections of the PDI WP and FSP accordingly.

SIB Response (September 10, 2021)

- b. The SAR included a detailed analysis and screening process to identify RPCs. The text will be modified to incorporate the results of that SAR analysis. The RPC screening analysis considered source areas, source control measures, and transport pathways to determine that certain chemicals identified in RDGC Appendix D Table 1 do not pose a risk of recontamination.

EPA Response (February 1, 2022)

- b. All RDGC Appendix D Table 1 contaminants are included for analysis in the QAPP Tables 19 and 30.1, except chlorobenzene. Chlorobenzene analysis by EPA method 8260 should be added to the riverbank soil analytical schedule unless its omission can be justified with robust technical rationale based on the project area-CSM provided in the forthcoming Phase 2 riverbank field sampling plan.

EPA Specific Comment 14 (August 13, 2021)

Section 4.5.4 Manual Grab Stormwater Solids Sampling Methodology, page 4-19: Provide additional information explaining what Teledyne ISCO portable samples are, what types of samples they are intended to collect, and how these data compare to HVS data.

SIB Response (September 10, 2021)

The text will be revised as follows: "Autosamplers (e.g., Teledyne ISCO portable samplers with flow meters) will be used to collect samples from small private conveyance systems to assess whether COCs in stormwater are controlled prior to RD. The samplers will be automatically programmed to collect samples during first-flush events to evaluate COC concentrations discharging to SIB and the need for source control measures. Deployment locations will be selected based on the location of discharges relative to SMAs, ROD CUL exceedances and/or lack of data adjacent to SMAs." Follow up and provide SOPs for autosamplers included in FSP or reference to LWG FSP.

EPA Response (February 1, 2022)

The text in the first paragraph of section 4.5.3 indicates that time-weighted composite samples will be collected and the text in the third paragraph of section 4.5.3 indicates that flow-weighted composite samples will be collected. Revise the text to clarify whether time-weighted or flow-weighted composites will be collected and how this best services the relevant DQO.

EPA Specific Comment 21 (August 13, 2021)

Section 5.3.2 Dive Inspection of In-Water Structures, pages 5- 2 through 5-3: Dive inspections should include in-water sheet pile bulkheads and not be limited to over-water structures. Dive inspections should not be limited to a maximum of three over-water or in-water structures if additional inspections can be performed to determine a structure's functional use and its estimated remaining design life.

SIB Response (September 10, 2021)

Section 5.3.2 will be revised to read "Selected in-water and over-water structures will be inspected by a dive team. The structures selected for a dive inspection will be based on the results of the screening-level inspections and preliminary analysis of the impacts of the RA on the structures. An existing structure that exhibits noticeable above-water deterioration that reduces the design capacity and is also negatively impacted by the proposed RA will receive priority for a dive inspection."

EPA Response (February 1, 2022)

Revise the text to include top to bottom inspection of structures anticipated to be impacted by remedial action to ensure structure failure is not likely to occur given assumed setbacks (e.g., above water abutment conditions may not necessarily represent underwater conditions).

EPA Specific Comment 24 (August 13, 2021)

Section 5.5 Porewater Upwelling Location Survey, page 5-6:

- a. The period of greatest upwelling identified in this section is July and August which is different from the June and July timeframe identified in PDI WP Section 4.2. Revise the text to address Specific Comment on PDI WP Section 4.2 and resolve the inconsistency between the timeframe suggested in the PDI WP and FSP to ensure that the DQO of measurement during the time period of greatest upwelling is met.
- c. Provide a SOP for the Trident Probe sampling with the revised PDI WP for EPA review.

SIB Response (September 10, 2021)

- a. No response provided.
- c. The SOP for the Trident Probe has been added to Appendix A of the FSP.

EPA Response (February 1, 2022)

- a. See EPA response to comment on Section 4.2 Porewater Upwelling Location Survey (comment reference no. 1063).
- c. Revise the FSP to provide the frequency at which Trident probe measurements will be recorded and clarify whether that frequency will account for daily tidal fluctuations

EPA Specific Comment 32 (August 13, 2021)

Figures 4-3 and 4-4:

- a. As discussed in PDI WP General Comment on Data Sources, only samples from approved data sets should be provided on the data gaps assessment figures. Remove or differentiate all non-approved surface and subsurface locations.

SIB Response (September 10, 2021)

- a. Figures 4-3 and 4-4 will be updated by differentiating non-EPA approved data sources.

EPA Response (February 1, 2022)

- a. The figures do not differentiate between EPA approved and non-approved data sources. Clarify whether the non-approved data was removed or revise the figures to indicate which data are not approved.

EPA Comments on FSP Revision 1, dated December 10, 2021 (February 1, 2022)

1. In cases where sample volume is limited and select COCs must be prioritized for analysis, EPA recommends analyzing for metals if sufficient volume remains after analyzing for focused COCs.
2. **Appendix C Section 3.4.1 CERCLA OSR Confirmation, page C-12:** Delete “and submit to the RPM for review, approval, and signature as generator of the waste” from the last sentence of this section. EPA is not the waste generator at the SIB Project Area and the EPA RPM does not need to review, approve, or sign the waste manifest or other support documentation. However, the EPA Region 10 Off-Site Contact must provide an acceptability determination of the receiving facility

for any waste, including IDW, to be sent off-site. The EPA RPM should be copied on correspondence with the EPA Region 10 Off-Site Contact.

EPA Comments on the PDI WP Appendix B QAPP

Unless otherwise noted, SIB responses to EPA's comments on Appendix B QAPP of the Draft PDI WP and the Revised Draft PDI WP are acceptable.

EPA Comments on QAPP Revision 1, dated December 10, 2021 (February 1, 2022)

Specific Comments on QAPP Revision 1:

1. **Worksheet 9 Project Scoping Session Participants Sheet, page 19:** Revise the worksheet to list the title for Wesley Thomas as 'Project Manager' and remove the role of 'Stormwater Coordinator'.

EPA Comments on the PDI WP Appendix C HASP

Unless otherwise noted, SIB responses to EPA's comments on Appendix C HASP of the Draft PDI WP and the Revised Draft PDI WP are acceptable. However, clarification and supplemental information is provided below for the following comments: General Comments 1, 5, and 6; Specific Comment 4.

EPA General Comment 1 (August 13, 2021)

Wildfire Smoke: With more frequent wildfires in Oregon and the West, EPA recommends including a section with wildfire smoke safety protocol in the event of poor air quality from significant airborne PM2.5 or PM10. Procedures could be similar to those promulgated by Cal OSHA, which states that actions such as event delaying, location moving, or face mask/respirator wearing be instituted when certain air quality index (AQI) levels are reached. Also, consider adding wildfire smoke hazards to appropriate AHAs.

SIB Response (September 10, 2021)

The following will be added to Contingency Plans: "Wildfire smoke safety protocol

Smoke from wildfires contains chemicals, gases and fine particles that can harm health. The greatest hazard comes from breathing fine particles in the air, which can reduce lung function, worsen asthma and other existing heart and lung conditions, and cause coughing, wheezing and difficulty breathing.

Protection from Wildfire Smoke will apply when the current Air Quality Index (AQI) for PM2.5 particulate is 151 or greater ("unhealthy") and when it is reasonably anticipated that employees may be exposed to wildfire smoke.

•At the start of each shift and periodically thereafter, as needed, AQI forecasts and current AQI for PM2.5 will be checked at the following websites or using another effective method (telephone, email, text, etc.) from the agencies listed below:

- The U.S. EPA AirNow
- The U.S. Forest Service
- The Interagency Wildland Fire Air Quality Response Program
- The local air pollution control district
- The local air quality management district

If the current AQI is 151 or greater. The following controls will occur:

- Implement a system for communicating wildfire smoke hazards
- Train employees in the hazards of wildfire smoke and the administrative and personal protection measures.
- Implement engineering controls, where feasible, to reduce employee exposure. Examples include providing enclosed structures or vehicles for employees to work in where the air is filtered.

- Whenever engineering controls are not feasible or do not reduce employee exposures changes will be made to work procedures or schedules (delay) when practicable. Examples include changing the location where employees work or their work schedules.
- Provide proper respiratory protection equipment, such as disposable filtering facepiece respirators

EPA Response (February 1, 2022)

Note that there is a new Oregon OSHA temporary rule on wildfire smoke that has been in effect since August 9, 2021.

EPA General Comment 5 (August 13, 2021)

COVID-19: Although COVID-19 protocol is discussed in Appendix G, additional mention and reference should be made elsewhere in the plan – e.g., Section 5.10 Biological Hazards, Section 7.1 Personal Protective Equipment, and/or JHAs. It is currently only referenced in the JHA for Working over Water from Boats and Docks.

SIB Response (September 10, 2021)

Under Hazards of Concern, Other, the text on COVID-19 will be expanded to reference the AHA Coronavirus Practices to Prevent Exposure.

Under Additional Protective Equipment Requirements, Head & Eye, the text will be revise to include "Face masks are to be worn in accordance with the AHA Coronavirus Practices to Prevent Exposure".

EPA Response (February 1, 2022)

Additional mention and reference to COVID-19 should be made elsewhere in the plan (e.g., Section 5.10 Biological Hazards, Section 7.1 Personal Protective Equipment, and/or JHAs). It is currently only referenced in the JHA for Working over Water from Boats and Docks.

EPA General Comment 6 (August 13, 2021)

Rubber Work Boots: Revise the HASP to include a requirement for rubberized, steel- toed work boots or leather, steel-toed work boots with disposable covers to be worn when working with contaminated sediment, consistent with other Project Areas at PHSS. This requirement reduces the potential for migration of contaminants sediments off the Site.

SIB Response (September 10, 2021)

On page 13 the text pertaining to Boots under Additional PPE Requirements will be revised to include the following:

Boots: Leather steel-toe or composite toe. Disposable covers are to be worn over the boots when working on contaminated sediment.

Rubber: on sediment sampling vessels, shallow water (if waders not required), and whenever working on contaminated sediment.

EPA Response (February 1, 2022)

Revise the text to clarify that disposable covers should only be used for visitors, infrequent staff, etc. and rubber boots should be used for primary field staff.

EPA Specific Comment 4 (August 13, 2021)

Stinging Insects, page 11: Instructions should be given for allergic persons to carry an Epi- pen or equivalent if physician directs and alert team to their allergy.

SIB Response (September 10, 2021)

Bullet item 12 of the General Site Rules will be revised to include the following statement: "Field staff with severe allergic reactions to stinging insects shall alert the SSHO and other field staff during the daily Tailgate Safety Meeting and carry an Epi-pen (if prescribed by a physician) with them while on site."

EPA Response (February 1, 2022)

Instructions should be given for allergic persons to carry an Epi- pen or equivalent if physician directs and alert team to their allergy.